

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently Amended) A method of manufacturing an integrated circuit having
2 trench isolation regions in a substrate including germanium, the method comprising:
3 providing a substrate comprising a silicon-germanium layer and a strained silicon
4 layer provided above the silicon-germanium layer;
5 forming a mask layer above the substrate;
6 selectively etching the mask layer to form apertures associated with locations of
7 the trench isolation regions;
8 forming trenches in the substrate at the locations, the trenches having sidewalls;
9 providing a semiconductor or metal layer ~~by selective epitaxial growth~~ directly in
10 contact with the sidewalls such that the semiconductor or metal layer is in direct contact with the
11 silicon-germanium layer and the strained silicon layer; and
12 converting the semiconductor or metal layer in the trenches of the substrate into
13 oxide liners.
- 1 2. (Original) The method of claim 1, further comprising providing an insulative
2 material in the trenches to form the trench isolation regions.
- 1 3. (Original) The method of claim 2, further comprising removing the insulative
2 material until the mask layer is reached.
- 1 4. (Original) The method of claim 1, further comprising:
2 providing a low temperature process oxide layer above the substrate and an
3 amorphous capping layer above the oxide layer.

1 5. (Withdrawn) The method of claim 1, wherein the amorphous capping layer is
2 amorphous silicon.

1 6. (Original) The method of claim 1, wherein the semiconductor or metal layer
2 includes silicon material.

1 7. (Original) The method of claim 1, further comprising:

2 providing a silicon nitride layer above the substrate and providing an amorphous
3 capping layer above the silicon nitride layer.

1 8. (Original) The method of claim 1, wherein the forming oxide liners step is an
2 oxidation process.

1 9. (Currently Amended) A method of forming shallow trench isolation regions in a
2 strained semiconductor layer, the method comprising:

3 providing a hard mask layer above the strained semiconductor layer;
4 providing a photoresist layer above the hard mask layer;
5 selectively removing portions of the photoresist layer at locations in a
6 photolithographic process;
7 removing the hard mask layer at the locations;
8 forming trenches in the strained semiconductor layer under the locations;
9 providing a conformal semiconductor layer in the trenches in direct contact with
10 the strained semiconductor layer ~~by selective epitaxial growth~~; and
11 oxidizing the conformal semiconductor layer to form a liner in the trenches.

1 10. (Original) The method of claim 9, further comprising:
2 providing a pad oxide layer above a strained silicon layer before the providing a
3 hard mask layer step.

1 11. (Original) The method of claim 10 further comprising:

2 removing the pad oxide layer at the locations before the forming trenches step.

1 12. (Previously Presented) The method of claim 9, further comprising:

2 providing an insulative material in the trenches to form the shallow trench

3 isolation regions; and

4 removing the hard mask layer.

1 13. (Withdrawn) The method of claim 9, further comprising:

2 providing a germanium-containing layer above the strained semiconductor layer.

1 14. (Withdrawn) The method of claim 13, wherein the strained semiconductor layer

2 is at least 200 Å thick.

1 15. (Withdrawn) The method of claim 14, wherein the germanium-containing cap

2 layer is 100 Å – 400 Å.

1 16. (Withdrawn) The method of claim 15, wherein the oxide liner is silicon dioxide

2 grown in an oxygen atmosphere.

1 17. (Currently Amended) A method of forming a liner in a trench comprising:

2 providing a strained layer above a germanium containing layer;

3 selectively etching the germanium containing layer and the strained layer to form
4 the trench;

5 providing a semiconductor layer in the trench ~~by selective epitaxial growth~~ such
6 that the semiconductor layer is in direct contact with the germanium containing layer and the
7 strained layer; and

8 converting the semiconductor layer into an oxide liner such that substantially all
9 of the semiconductor layer is consumed during the conversion.

1 18. (Currently Amended) The method of claim 17, wherein the ~~epitaxial-growth step~~
2 of providing a semiconductor layer in the trench is performed at a temperature below 600°C.

1 19. (Cancelled)

1 20. (Currently Amended) The method of claim [[19]] 17, wherein the oxide liner is
2 100-200 Å thick.